WILDLIFE MANAGEMENT UNIT 16C - CENTRAL MOUNTAINS, MANTI SOUTH

Boundary Description

Sanpete, Emery, and Sevier counties - Boundary begins at the junction of Highway SR-10 and Highway SR-31 at Huntington; then south on SR-10 to Interstate 70; west on I-70 to Highway US-89 at Salina; north on US-89 to SR-31 at Fairview; southeast on SR-31 to SR-10 at the beginning point at Huntington.

Herd Unit Description

Unit 16C was previously called Deer Herd Unit 31- South East Manti. It was enlarged in the spring of 1998 to include both the east and west sides of the Wasatch Plateau and renamed Wildlife Management Unit 16C. Unit 16C is a subunit of the very large management unit 16 which encompasses areas in Utah, Carbon, Juab, Sevier, and Sanpete Counties. Approximately 54% of unit 16's winter range is on land administered by the U.S. Forest Service and the BLM. Another 35% is on private land. The U.S. Forest Service administers 72% of the summer range, while 22% is private.

The upper limits of the winter range on subunit 16C - South-East Manti, generally follow the rim of the plateau and the 9,000 foot level of the south and west exposures of the large canyons and mountain slopes. A good description of winter range limits and prominent vegetative types can be found in the 1980 Utah Big Game Range Inventory (Giunta l982).

The upper portions of the winter range on Forest Service lands are managed primarily for livestock grazing. Widespread watershed rehabilitation, contour trenching and seeding, was done on this rangeland in the 1960's. An extensive road system provides access to a large percentage of the winter range. Many roads in critical areas are open or maintained and used winter long in relation to various activities, namely mining, gas wells, the Horn Mountain TV towers, and for recreation. Access is more restricted further south in the Ferron and Muddy Creek drainages.

The lowest foothill ranges are accessible year-round and are usually adjacent to agricultural areas. Coal mining and the power plants are the major economic activities in the area. Other associated impacts include road improvements, truck traffic, and an increased human population. This all assuredly has an effect on the distribution and abundance of big game animals. Outdoor recreation is popular in the area. These activities include camping, hunting, fishing, four-wheeling, and snowmobiling which are facilitated by the extensive road system in the mountains and foothills. The very lowest portion of the herd unit supports a low desert shrub type on unproductive shale hills. This acreage is not considered part of the winter range.

Key Areas

The key deer wintering areas are the lower end of Muddy Creek and Ferron Creek, Black Dragon, Biddlecome Hollow, Cottonwood Canyon, and Huntington Canyon. Elk winter higher on Trail Mountain, North and South Horn Mountain, and Sage Flat. Deer also utilize these areas during mild winters. Elk utilize the mahogany and sagebrush on the lower points of the plateau, such as North and South Horn Mountain and Trail Mountain.

On the Southeast Manti Unit, much of the key winter range is on Forest Service lands. Pinyon-juniper benches become more limited to the south and there are mostly low desert shrub foothills associated with Muddy Creek. Overall, the pinyon-juniper type occupies a fair amount of the winter range at low elevations, but is not critical to the trend monitoring program. However, the chained and seeded portions of this type provide important wintering areas where many are monitored for trend. Chainings are sampled in the foothills from Huntington Canyon to south of Dry Wash. Other key areas at Middle Mountain and Dry Mountain are

also sampled. The big sagebrush/grass range type is found on many key areas, especially on the North East Manti Unit, but also on high elevation elk winter range on Trail, East, and Horn Mountains. Big sagebrush/grass is limited on critical deer winter range, but key areas are found on Black Dragon and Muddy Creek. Large areas of key winter range, also identified by the U.S. Forest Service in their Land and Resource Management Plan, are found on Trail Mountain, North Horn and South Horn Mountain, in lower Dry Wash, and along Muddy Creek. Mixed mountain brush and curlleaf mountain mahogany types are especially important in these areas.

Grazing Summary

The livestock grazing programs on Forest Service lands in the Southeast Manti Unit generally involve a deferred or rest-rotation system for cattle, or sheep grazing during the summer and fall. Specific allotment management plans vary as to exact season dates. Several study sites receive little impact from livestock due to accessibility, livestock distribution and management. The study site on Middle Mountain (#17), the only trend study on a sheep allotment, apparently receives little livestock use because the sheep are not grazed on the west side due to closure of the area after the chaining. Although contained in the Gentry Mountain cattle allotment, West Huntington Canyon (#13) above Crandall Canyon is not used by cows due to the long steep slopes up to the ridge top. The trend study on East Mountain (#18) is in the East Mountain Allotment which is made up of both private and USFS land. It is permitted for grazing June 21 to September 10 by 341 cattle in a four pasture rest rotation system. There are two studies in the Trail Mountain Cattle allotment. The area around the Trail Mountain Exclosure (#19) has been closed to grazing since the late 1960's after a watershed treatment, but there is some trespass. The site at Miles Point (#20) is grazed from June 21 to September 20 by 901 cows under a deferred-rotation system.

There are five studies in the Horn Mountain cattle allotment (#21, #22, #23, #24, #25). The season of use on this allotment is June 6 to September 30, with 849 cows (4,371 AUM's) under a five pasture rest-rotation grazing system. All study sites are used by cattle. In the Black Dragon (#23) area, also in the Horn Mountain allotment, part of the herd is grazed for a short period early in the season. There is little grazing pressure in the sagebrush flat where the trend study is located because of the distance to water.

Water also limits cattle use on three study sites in the Ferron cattle allotment. The Dry Mountain (#26) and the isolated bench south of Dry Wash show little sign of use by cattle. Cattle grazing was limited on the isolated Birch Creek chaining (#27) in 1988 and 1994, but was moderate to heavy in 1999 and 2004. The allotment is permitted for 1,607 cows, from June 21 to October 5. The plan follows a rest-rotation schedule utilizing eight pastures. The two other trend studies on the Ferron grazing allotment, Scab Hollow (#29) and Upper Hole Trail (#30), receive considerably more use by cows. Cattle trail up and down the old Hole Trail, but they should not hold over in the basin at the top of the trail where the study is located because there is no water. Cattle use to trail up Muddy Creek (#32), however there is not much livestock use on Forest Service land in the canyon anymore, except for some trespass from private land downstream. The new sites at Little Nelson Mountain (#33) and South Sage Flat (#34) also occur in the Ferron allotment.

The Emery cattle allotment is permitted for 1,387 cows from June 16 to September 30 in a six pasture rest rotation schedule. The area around Box Canyon Knolls (#31) is generally an early unit in the rest-rotation schedule.

The grazing programs for the BLM lands sampled on this unit are contained in the West Huntington and Wilberg Allotment Management Plans. Historically, there has been heavy cattle use on the West Huntington allotment. The deferred rotation system planned in 1968 was never implemented. A new plan was initiated in 1988, calling for closure of one pasture and a 50% reduction in spring AUM'S instead of the recommended elimination of all spring grazing permits. 177 cows use the unit from May 1 to June 26 and 140 cows from November 1 to December 15. Monitoring will continue and there is a possibility of more reductions if there is

no improvement in range conditions. The Wilberg allotment is also a cattle allotment, grazed in spring and late fall. Eighty-nine cows use the unit from November 1 to December 15 and April 16 to June 15. Fencing and water developments planned in 1969 were never completed so the two pastures are grazed on a continuous basis, one in winter and one in spring.

Herd Unit Management Objectives

There are no current specific management objectives for sub unit 16C, only unit wide objectives. The current target winter herd size for all of unit 16 is to achieve a target population size of 60,600 (38,000 wintering deer on the Wasatch Plateau or Manti Mountain Portion of the unit and 22,600 on the Nebo portion). A post season buck to doe ration of 15:100 is sought with 30% of these bucks being 3 point or better.

Trend Study Site Description

Unit 16C contains 27 trend study sites. Eighteen sites were originally established in 1988 and reread in 1994 and 1999. In the summer of 1994, it was determined at an Interagency meeting of DWR, Forest Service, and BLM personnel that five new key area studies were necessary. The new studies were established in July and August of 1994 and include; Little Nelson Mountain #33 (sagebrush/grass), South Sage Flat #34 (sagebrush/grass), Wildcat Knolls #35 (black sagebrush/grass), Danish Bench #36 (chaining), and Joe's Valley Overlook #37 (mixed mountain brush). The study at Danish Bench, was established to replace Church Mine Road #16, which was eliminated due to light utilization. Two trend studies, Cedar Mountain #40 and Trough Hollow #41, were originally in other herd units but are now part of the Manti-Nebo Manti South unit. These two studies were established in 1985 and reread in 1991 and 1999. In 2004, two study sites (Box Canyon Sage Grouse #42 and Olson Draw Sage Grouse # 43) were established to monitor sage grouse nesting and brooding habitat, both receive moderate elk use as well.

SUMMARY

WILDLIFE MANAGEMENT UNIT - 16C - MANTI - NEBO, MANTI SOUTH

The 27 trend studies on unit 16C are difficult to group and categorize due to the extensive diversity. Eight sites sample pinyon-juniper chainings, nine sites sampled mountain big sagebrush, five sites sample mixed mountain brush, two sites sampled black sagebrush, two sites sampled curlleaf mountain mahogany, and one site sampled Wyoming big sagebrush. All sites sample deer or elk winter range except Joe's Valley overlook (#37),Trough Hollow (#41) and two sage grouse sites, Box Canyon Sage Grouse (#42) and Olson Draw Sage Grouse (#43).

Pinyon-juniper chainings make up a large portion of the studies that sample winter range for big game on this unit. These transects include Red Point (#14), Howard Forest Service Chaining (#15), Middle Mountain (#17), Dry Mountain (#26), Birch Creek Chaining (#27), South of Dry Wash (#28), Danish Bench (#36) and Cedar Mountain (#40). Soil trend in 1999 on these chaining study sites were all stable or slightly improved. In 2004, only three of the sites were stable, while the remaining five were down or slightly down. In 1999, browse trends were stable at Red Point, Howard Forest Service Chaining, Birch Creek Chaining, Danish Bench, and Cedar Mountain, and slightly up for the other three sites. In 2004, only Middle Mountain and South of Dry Wash showed improving browse trends. Red Point, Birch Creek chaining, Danish Bench, and Cedar Mountain showed stable browse trends. The remaining two, Howard FS chaining and Dry Mountain, indicated slightly downward trends. Herbaceous trends in 1999 were stable or slightly up for all sites but in poor condition at Red Point, Howard Forest Service Chaining, South of Dry Wash, and Danish Bench. Herbaceous trends for 2004 indicated all sites were either slightly-down or down because of the drought.

Another important component of the winter ranges sampled on this unit are the mountain big sagebrush flats. These studies include East Mountain (#18), Miles Point (#20), North Horn-Rock Canyon (#22), Black Dragon (#23), South Horn 1/4 Corner (#25), Wildcat Knolls (#35), Box Canyon Sage Grouse (#42), and Olson Canyon Sage Grouse (#43). Soil trends for 1999 on all of these sites were stable except for Wildcat Knolls which had a slightly improving trend. Soil trends for 2004 were very similar with all being considered stable except for Miles Point and Wildcat Knolls which were slightly down. Browse trends for 1999 were stable on all sites except for South Horn 1/4 Corner and Wildcat Knolls which had slightly improving trends. Browse tends for 2004 have changed markedly with the drought. East Mountain, Black Dragon, Box Canyon Sage Grouse(#42), and Olson Canyon Sage Grouse (#43) all had stable browse trends. North Horn-Rock Canyon received a slightly downward trend for browse and the remainder of the sites all had downward browse trends. Six studies sample mixed mountain brush which are all at elevations above 8,300 feet. These studies include Trail Mountain Exclosure (#19), North Horn Cap (#21), South Horn Exclosure (#24), Upper Hole Trail (#30), Joe's Valley Overlook (#37), and Trough Hollow (#41). Soil trends for 1999 were stable at Trail Mountain Exclosure, Joe's Valley Overlook, and Trough Hollow and slightly up on the remaining three sites. Soil trends for 2004 are all stable except for Trail Mountain Exclosure which was slightly down and North Horn Cap which was suspended. Browse trends for 1999 were stable at Trail Mountain Exclosure, Upper Hole Trail, and Joe's Valley Overlook. Browse trends are slightly upward at South Horn Exclosure and Trough Hollow. North Horn Cap has displayed a slightly downward browse trend since 1994 and it is now suspended. Herbaceous trends for 1999 were slightly improved for North Horn Cap which is now suspended. The rest are stable except for Trough Hollow which was the only one that exhibited a slightly downward browse trend. The herbaceous trend for 2004 was slightly downward for all sites because of the extended drought.

Black sagebrush is sampled by the Box Canyon Knolls (#31) and South Sage Flat (#34) studies. South Sage Flat was established in 1994 to monitor elk use. This site showed a stable soil, browse, and herbaceous trends. In 2004, South Sage Flat showed similar trends for soil and herbaceous species, and downward for browse. The browse was thought to be especially effected by the extended drought. Box Canyon Knolls for 1999 exhibited stable trends for soil, browse, and herbaceous understory. For 2004 this all changed with a slightly

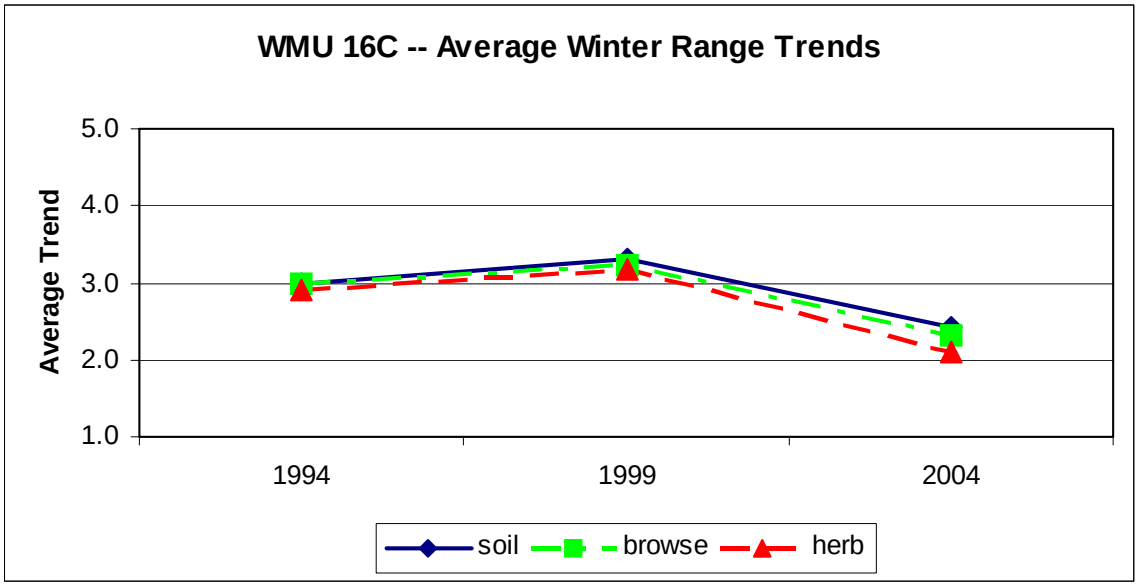
downward trend for soil and downward trend for both browse and herbaceous understory.

Curlleaf mountain mahogany is sampled on two sites, West Huntington Canyon (#13) and Scab Hollow (#29). Trends for both sites in 1999 was stable for soil, browse, and herbaceous trends. Trends for 2004 was again all stable trends for Scab Hollow, while West Huntington Canyon trends were slightly downward for soil and herbaceous understory, and stable for browse.

Little Nelson Mountain samples an opening of Wyoming big sagebrush along Ferron Creek. This was a new study established in 1994. In 1999, it displayed an upward soil and herbaceous trend and a slightly upward browse trend. The trends for 2004 indicated that soil and herbaceous understory were stable, and browse trend was downward. The other Wyoming big sagebrush site is the Muddy Creek site which is one of the sites with the lowest elevations in the unit. It occurs at the lower elevational limit as indicated with its association with shadscale which is associated with precipitation at or less than 8 inches per year. Trends for 1999 showed stable trends for soil and herbaceous understory, but both would be rated as very poor. Browse trend was determined as slightly downward. Trends for 2004 indicated similar trends for both soil and herbaceous understory. However, the browse trend went to a downward trend because most all the Wyoming big sagebrush has been lost to drought on this very dry site. Density is down to only 400 plants/acre and 70% of these plants were classified as dying. In 1999, the Wyoming big sagebrush population was at 3,200 plants/acre with 50% of them classified as decadent. The population has come a long ways down from that relatively high density in 1999.

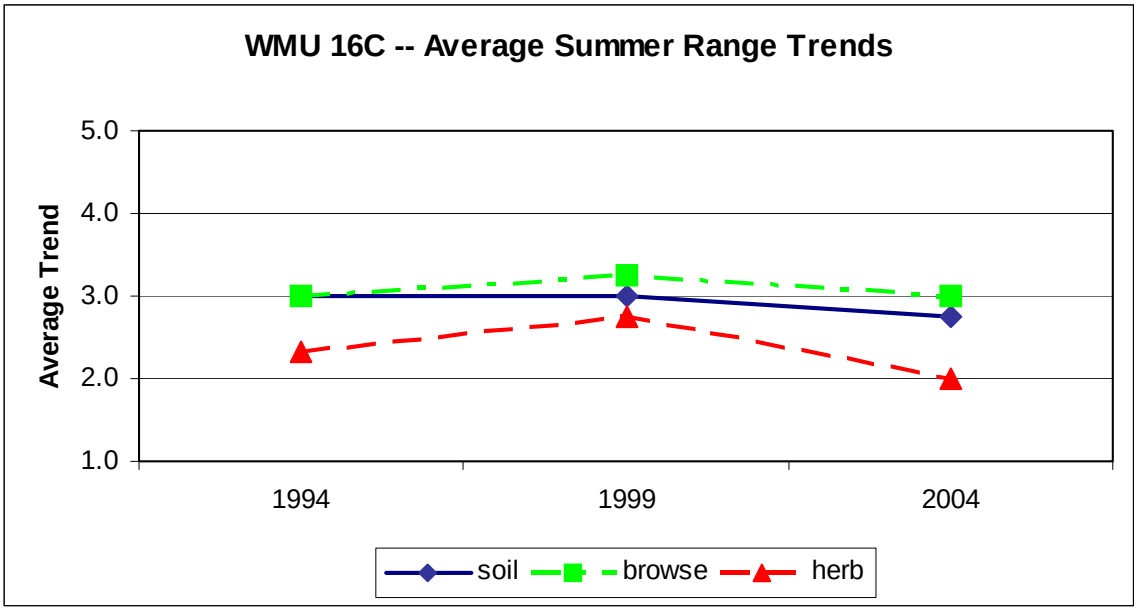
Winter Average Trends -- WMU 16C Manti-Nebo, Manti South

	1994	1999	2004
soil	3.0	3.3	2.4
browse	3.0	3.2	2.3
herb	2.9	3.2	2.1
	19 sites	22 sites	22 sites

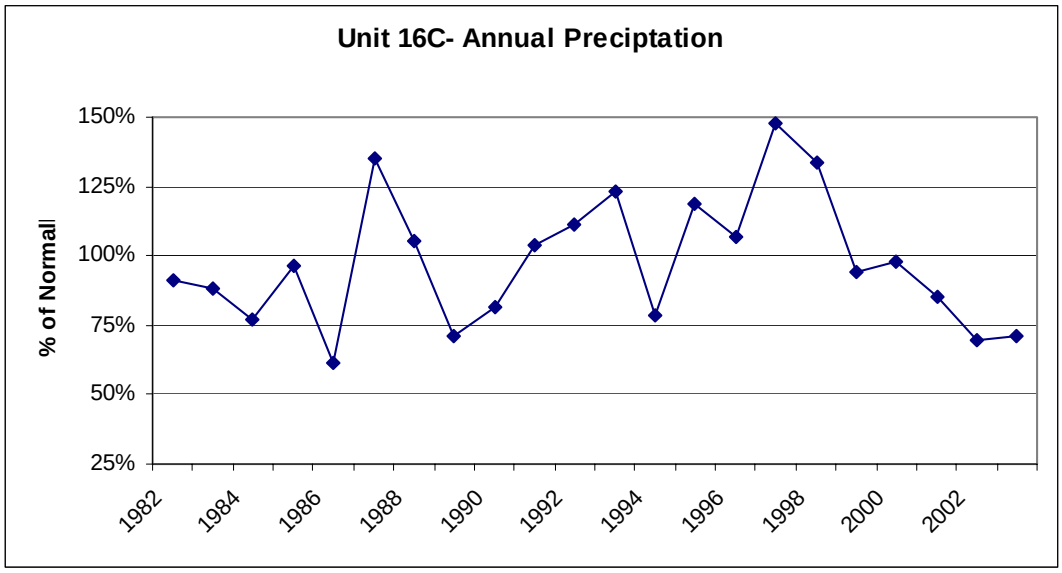


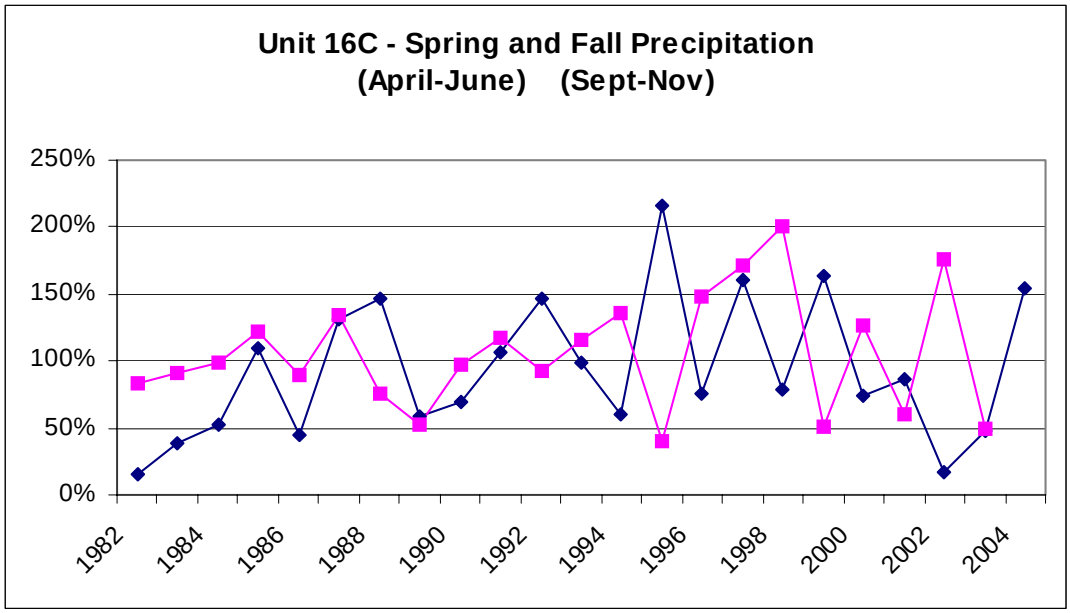
Summer Average Trends -- WMU 16C Manti-Nebo, Manti South

	1994	1999	2004
soil	3.0	3.0	2.8
browse	3.0	3.3	3.0
herb	2.3	2.8	2.0
	3 sites	4 sites	4 sites



Precipitation graphs for the Manit-Nebo, Manti South unit. Data is percent of normal precipitation averaged for 3 weather stations in Salina, Ferron, and Castle Dale (Utah Climate Summaries 2004).





Trend Summary

Site	Category	1988	1994	1999	2004
16C-13 West Huntington Canyon	soil	est	3	3	2
	browse	est	3	3	3
	herbaceous understory	est	2	3	2
16C-14 Red Point	soil	est	4	3	2
	browse	est	3	3	3
	herbaceous understory	est	2	3	1
16C- 15 Howard Forest Service Chaining	soil	est	3	3	2
	browse	est	2	3	2
	herbaceous understory	est	2	4	1
16C-17 Middle Mountain	soil	est	1	4	3
	browse	est	3	4	4
	herbaceous understory	est	3	3	2
16C-18 East Mountain	soil	est	3	3	3
	browse	est	3	3	3
	herbaceous understory	est	2	3	2
16C-19 Trail Mountain Exclosure	soil	est	3	3	2
	browse	est	3	3	3
	herbaceous understory	est	2	3	2
Site	Category	1998	1994	1999	2004
16C-20 Miles Point	soil	est	3	3	2
	browse	est	3	3	1
	herbaceous understory	est	4	3	2
16C-21 North Horn Cap	soil	est	2	4	susp
	browse	est	3	2	
	herbaceous understory	est	3	4	
16C-22 North Horn Rock Canyon	soil	est	3	3	3
	browse	est	2	3	2
	herbaceous understory	est	2	4	3

1) = down, (2) = slightly down, (3) = stable, (4) = slightly up, (5) = up
(est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read

Site	Category	1998	1994	1999	2004
16C-23 Black Dragon	soil	est	3	3	3
	browse	est	3	3	3
	herbaceous understory	est	3	3	2
16C-24 South Horn Exclosure	soil	est	3	4	3
	browse	est	3	4	2
	herbaceous understory	est	2	3	2
16C-25 South Horn 1/4 Corner	soil	est	3	3	3
	browse	est	2	4	1
	herbaceous understory	est	2	3	2
16C-26 Dry Mountain	soil	est	3	3	3
	browse	est	3	4	2
	herbaceous understory	est	3	3	2
16C-27 Birch Creek Chaining	soil	est	3	3	2
	browse	est	3	3	3
	herbaceous understory	est	2	4	2
16C-28 South of Dry Wash	soil	est	3	4	2
	browse	est	3	4	4
	herbaceous understory	est	3	3	2
16C-29 Scab Hollow	soil	est	3	3	3
	browse	est	3	3	3
	herbaceous understory	est	3	3	3
16C-30 Upper Hole Trail	soil	est	3	4	3
	browse	est	3	3	3
	herbaceous understory	est	4	3	2
16C-31 Box Canyon Knolls	soil	est	4	3	2
	browse	est	4	3	1
	herbaceous understory	est	3	3	1

(1) = down, (2) = slightly down, (3) = stable, (4) = slightly up, (5) = up
(est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read

Site	Category	1998	1994	1999	2004
16C-32 Muddy Creek	soil	est	4	3	3
	browse	est	3	2	1
	herbaceous understory	est	4	3	3
16C-33 Little Nelson Mountain	soil		est	4	3
	browse		est	4	1
	herbaceous understory		est	4	3
16C-34 South Sage Flat	soil		est	3	3
	browse		est	3	1
	herbaceous understory		est	3	2
16C-35 Wildcat Knolls	soil		est	4	2
	browse		est	4	1
	herbaceous understory		est	2	2
16C-36 Danish Bench	soil		est	3	3
	browse		est	3	3
	herbaceous understory		est	3	1
16C-37 Joe's Valley Overlook	soil		est	3	3
	browse		est	3	3
	herbaceous understory		est	3	2
Site	Category	1985	1991	1999	2004
16C-40 Cedar Mountain	soil	est	3	3	1
	browse	est	5	3	3
	herbaceous understory	est	5	3	2
16C-41 Trough Hollow	soil	est	3	3	3
	browse	est	3	4	3
	herbaceous understory	est	3	2	2
16C-42 Box Canyon Sage Grouse	soil				est
	browse				est
	herbaceous understory				est

(1) = down, (2) = slightly down, (3) = stable, (4) = slightly up, (5) = up
(est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read

Site	Category	1998	1994	1999	2004
16C-43 Olson Draw Sage Grouse	soil				est
	browse				est
	herbaceous understory				est
Site	Category			1998	2004
16R-5 Scad Hollow	soil			est	3
	browse			est	4
	herbaceous understory			est	3

(1) = down, (2) = slightly down, (3) = stable, (4) = slightly up, (5) = up
(est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read